Project Baseline Summary Report

Data Source: **EM CDB**
Report Number: **GEN-01b**
Operations/Field Office: **Chicago**
Print Date: **3/9/2000**
Site Summary Level: **Brookhaven National Laboratory**
HQ ID: **0023**
Project **CH-BRNLWO / BNL Waste Operations**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The Waste Management program provides for the following scope: a Base Program (also called Continuity of Operations, or Program Management), Collection, Treatment, Storage, and Disposal of Federal and State regulated wastes. The following is a description of each element:

Base Program - This element provides for all of the managerial, technical, and oversight support required to carry out the mission, as well as the maintenance of all of the nuclear and radiological facilities occupied by the Waste Management Department that is not directly attributable to the waste processing.

Collection - This element provides for the collection of regulated wastes at the waste accumulation areas and subsequent movement to the waste treatment and/or storage area. This element also provides for the return of wastes which have been collected but found to not meet the BNL Waste Acceptance Criteria.

Treatment - This element provides for the segregation, repackaging, volume-reduction and/or treatment of all regulated wastes. This element also provides the labor and supplies for inspection, routine maintenance, and periodic overhaul and upgrade of the waste treatment systems.

Storage - This element provides for the storage of all regulated wastes including space charges, periodic inspections, and maintenance charges related to the storage of these wastes. This element will also include the costs to provide for wastes in long-term storage.

Disposal - This element provides for the safe disposal of all regulated wastes. It includes the pre-transportation preparation and inspections, transportation and subsequent disposal fees for the regulated wastes. This element will include wastes shipped to DOE and commercial disposal facilities.

Technical Approach: Technical approaches identified for use in this project are:
1- Compaction & segregation of low level radioactive wastes (LLW);
2- Neutralization of some hazardous and mixed wastes;
3- Stabilization and incineration of some hazardous wastes;
4- Solidification of LLW;
5- Processing of liquid LLW through a Reverse Osmosis (RO) Microfiltration system;
6- Evaporation of liquid LLW;and
7- Incineration of solid and liquid LLW.

Project Status in FY 2006:

Activities will continue to be completed as planned as long as the Laboratory`s waste generation rates remain constant.

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Post-2006 Project Scope:

Activities will continue to be completed as planned as long as the Laboratory`s waste generation rates remain constant. The funding is assumed to be flatlined from FY2007 to FY2070. Also, the Landlord (SC) will be responsible for the waste management program starting in FY2001.

Project End State

The Waste Management Program will be transferred to the Office of Science in FY 2001, which is assumed to be the end date of the project.

Cost Baseline Comments:

Major Assumptions:
1- The Laboratory`s waste generation rates remain constant.
2- EM-30 does not pay for Sanitary Wastes at BNL.
3- Industrial waste volumes and funding are included with hazardous waste.
4- Solid LLW data do not include Legacy (including copper) wastes. 5- Volumes of mixed waste generated equals the volume disposed.
6- No contingencies. All estimates are based upon past history since this is an Operation vs. a project with a direct scope.
7- No OER waste volumes are included, only wastes that EM-30 actually pays for, and volumes do not include lead that will be recycled.
8- Assumes all CE needed will be obtained through additional "outside" funding (i.e, Hot Cell), from FY01 out, it is estimated at $100K per year.
9- Volumes do not include waste stored in other "boneyard" areas around the site as well as sources that are no longer required.
10- FY 2001 EM costs pending transfer to SC.
Baselines have been updated to reflect actual costs thru FY 1998, CYWPs for FY 1999, and Congressional Budget Request for FY 2000. FY 1999 and FY 2000 amounts contain funding to accommodate anticipated costs of legacy waste to be dispositioned prior to turning over waste operations functions to the Office of Science in FY 2001. FY 2001 reflects the increase to implement DOE Order 435.1. The years after FY 2001 reflect increases to maintain compliance with the new Order. Escalation rates used were 2.7% for FY 2000 and 2.1% in years after FY 2000. EM funding for FY 2001 is pending transfer to Office of Science.

Safety & Health Hazards:

Categories of significant S&H hazards include: radiological, chemical, industrial, and fire/explosion. These hazards could impact site workers, the public, and/or the environment depending upon proper funding. Currently 2.2 FTE`s are allocated towards the ES&H function. Additional personnel have been recommended, but funding is not sufficient to support another full-time FTE.

All activities are conducted in accordance with DOE, EPA, NYSDEC, OSHA, and county regulations and requirements. End state hazards should be reduced if appropriate funding is available to perform the recommended action.

The hazards remain the same after FY 99; the only difference is that they will be SC`s responsibility vs. EM`s.

Safety & Health Work Performance:

Activities and checkpoints used to ensure safety readiness include: Operational Readiness Reviews (ORRs), Unresolved Safety Question Determinations, Stop Work Authority, training, occurrence reporting, and non-conformances. Currently 2.2 FTE`s are allocated and a term (3-6

Project Description Narratives

month) position will be in place during the transition to the new WMF. Additional full time FTE is requested, however, the funding does not allow for it.

Materials, supplies, equipment, and instrumentation required by these FTEs are included under the waste stream operation (i.e., hazwaste, radwaste, etc..

PBS Comments:

This scenario allows for the continued uninterrupted operation of the Hazardous Waste Management Program with respect to hazardous waste.˝ It does not allow for the disposal of all the solid low level radioactive waste that is generated. This will create

Baseline Validation Narrative:

The reasonableness of the scope and cost of Waste Operations activities for CH laboratories was validated in September 1996. This validation activity was performed by a team comprised of Chicago Operations Office staff, Headquarters Program Office (EM-34) staff and an independent consultant from Project Assistance Corporation who provides support to the Richland Operations Office. The team validated the use of historical data to forecast future waste quantity generation for ongoing research activities and validated the use of Activity Based Cost Estimates to determine the resources required. This scope definition was determined to be the key element in determining costs.

General PBS Information

Project Validated? Yes **Date Validated:** 9/1/1996

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/7/1999

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
N	Y	N	Y	N	Y	Y	Y

Project Identification Information

DOE Project Manager: C. Polanish

DOE Project Manager Phone Number: 516-344-5224

DOE Project Manager Fax Number: 516-344-3444

DOE Project Manager e-mail address: polanish@bnl.gov

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General PBS Information

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	65,463	910,313	975,776	5,956	5,956	5,260	5,260	7,431	8,088	6,425	6,195	6,325	6,458	6,593	6,732
PBS Baseline (constant 1999 dollars)	61,582	370,624	432,206	5,956	5,956	5,260	5,260	7,431	7,875	6,127	5,787	5,786	5,787	5,786	5,787
PBS EM Baseline (current year dollars)	33,160	0	33,160	5,956	5,956	5,260	5,260	7,431	8,088	6,425	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	32,649	0	32,649	5,956	5,956	5,260	5,260	7,431	7,875	6,127	0	0	0	0	0

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	6,873	7,017	7,165	7,315	38,946	43,211	47,942	53,192	59,018	65,480	72,651	80,606	89,433	99,226	110,091	122,147
PBS Baseline (constant 1999 dollars)	5,786	5,786	5,786	5,786	28,956	28,957	28,956	28,956	28,957	28,957	28,957	28,957	28,957	28,957	28,956	28,957
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

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		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category:	Other													
Office of Science							100	100	100	100	100	100	100	100

		2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category:	Other													
Office of Science		100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/1999

Current Projected End Date of Project: 10/1/2000

Explanation of Project Completion Date Difference (if applicable):

The date for transfer to the Office of Science has been changed to 10/1/2000.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	17,250	**Actual 1997 Cost:**	5,956	**Actual 1998 Cost:**	5,260
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	6,034	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			163
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	6,197				

Project Cost Changes

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Project Reconciliation

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	15,236	Low level legacy waste and DOE O 435.1. (FY 2000/1 were formerly non-EM funded.)
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	21,433	
Additional Amount to Reconcile (+):	0	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**21,433**	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Transfer to Landlord (Office of Science)	CH-BRNL-WO-001		10/1/2000								
Project Start	CH-BNL-WO-002		10/1/1996								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Transfer to Landlord (Office of Science)	CH-BRNL-WO-001				Y						
Project Start	CH-BNL-WO-002			Y							

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 20(
MLLW														
Treatment	M3	34.84	0.00	34.84	0.00		0.00	3.12	14.92	9.00	7.80			
MLLW														
Storage	M3							13.41	6.24	2.84	0.64			
MLLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Comm. Disp.	M3	27.61	0.00	27.61	0.00		0.00	2.60	13.61	6.60	4.80			
LLW														
Treatment	M3	1,306.30	0.00	1,306.30	0.00		0.00	283.80	394.50	314.00	314.00			
LLW														
Storage	M3							712.30	490.50	18.00	0.00			
LLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Comm. Disp.	M3	532.50	0.00	532.50	0.00		0.00		42.00	472.50	18.00			
LLW														
Ship to DOE Disp.	M3	1,020.10	0.00	1,020.10	0.00		0.00	417.80	277.30	162.50	162.50			

Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
MLLW													
Treatment	M3												

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
MLLW													
Storage	M3												
MLLW													
On-Site Disp.	M3												
MLLW													
Comm. Disp.	M3												
LLW													
Treatment	M3												
LLW													
Storage	M3												
LLW													
On-Site Disp.	M3												
LLW													
Comm. Disp.	M3												
LLW													
Ship to DOE Disp.	M3												

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
MLLW										
Treatment	M3									17.80
MLLW										
Storage	M3									
MLLW										
On-Site Disp.	M3									2.60

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
MLLW										
Comm. Disp.	M3									15.40
LLW										
Treatment	M3									1,033.30
LLW										
Storage	M3									
LLW										
On-Site Disp.	M3									118.00
LLW										
Comm. Disp.	M3									710.50
LLW										
Ship to DOE Disp.	M3									409.70

Technology Needs

Site Need Code: CH-MW05-99

Site Need Name: Treatment of PCB Contaminated Low Level Waste

Focus Area Work Package ID: MW-07 **Focus Area Work Package:** Alternatives to Incineration to Reduce Emission Hazards.

Focus Area: MWFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate
Direct Chemical Oxidation	0	

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Technology Needs

Site Need Code: CH-MW06-99

Site Need Name: Treatment of Reactive Waste

Focus Area Work Package ID: MW-08 **Focus Area Work Package:** Facilitating Deployment for Unique Wastes

Focus Area: MWFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Both

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Site Need Code: CH-MW08-99

Site Need Name: Solidification of Reverse Osmosis Concentrates

Focus Area Work Package ID: MW-07 **Focus Area Work Package:** Alternatives to Incineration to Reduce Emission Hazards.

Focus Area: MWFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate